

# (12) UK Patent Application (19) GB (11) 2 339 920 (13) A

(43) Date of A Publication 09.02.2000

(21) Application No 9812532.1

(22) Date of Filing 10.06.1998

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(51) INT CL<sup>7</sup>  
G02B 5/20, F21V 7/00 9/10

(52) UK CL (Edition R)  
G2J JFM  
F4R RFN R20Y R23Y R254

(56) Documents Cited  
EP 0565218 A

(58) Field of Search  
UK CL (Edition Q) F4R RCK RFM RFN, G2J JFM J9B  
INT CL<sup>6</sup> F21V, G02B

(54) Abstract Title  
Light filters

(57) A light filter, in particular filters for torches or other lighting apparatus, comprises two elements 21, 20 each element including a light-filtering portion and apertures 30 which allow unobstructed transmission of light, wherein the first element 21 is mounted for rotation by moving handle 23 upon the second element 22 and torch 12 such that the degree of filtering is adjustable between a maximum value and a minimum value.

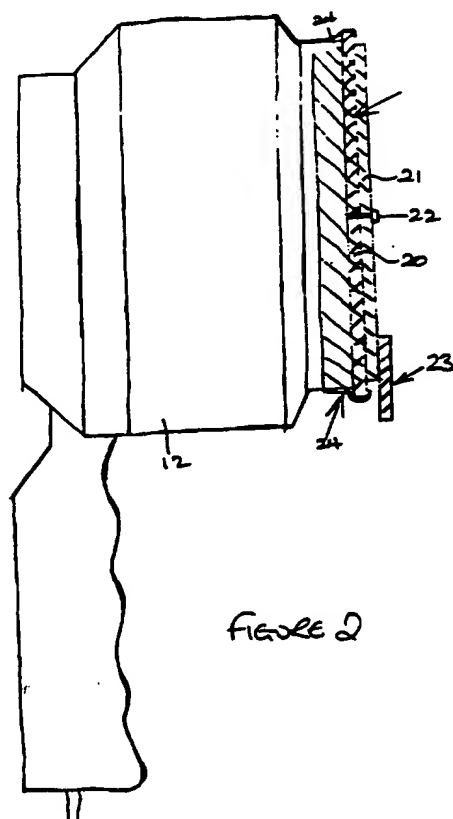


FIGURE 2

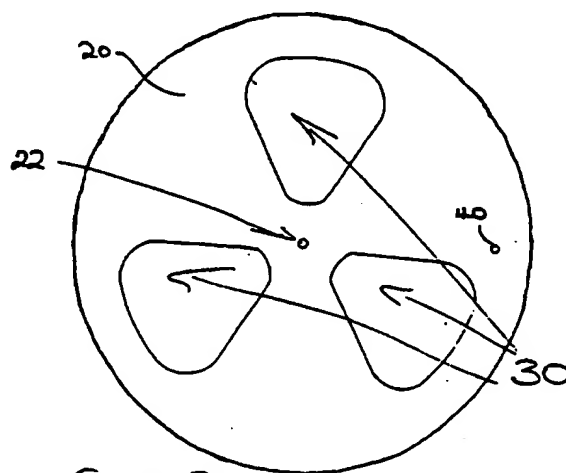


FIGURE 3

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

## Electrical Supply

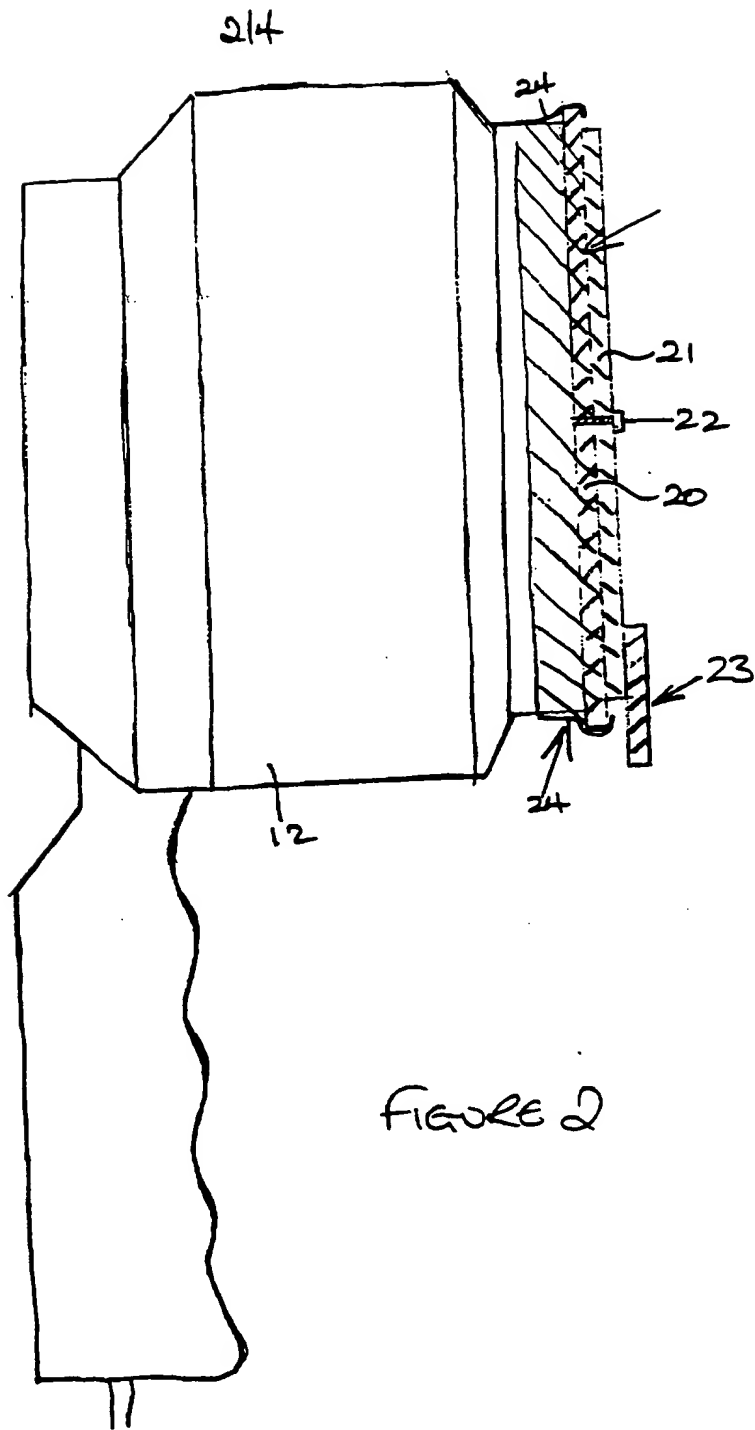


FIGURE 2

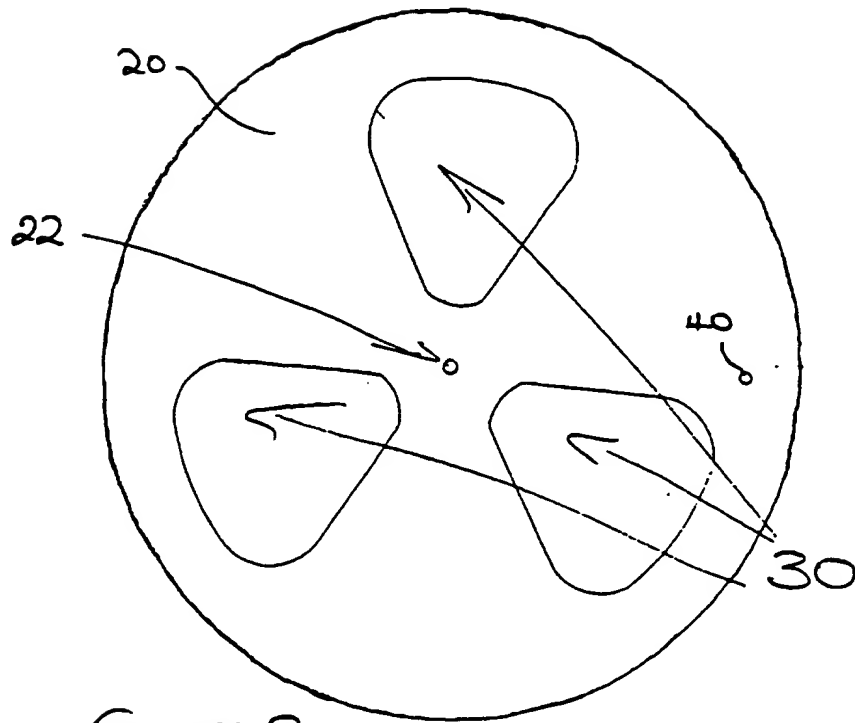


FIGURE 3

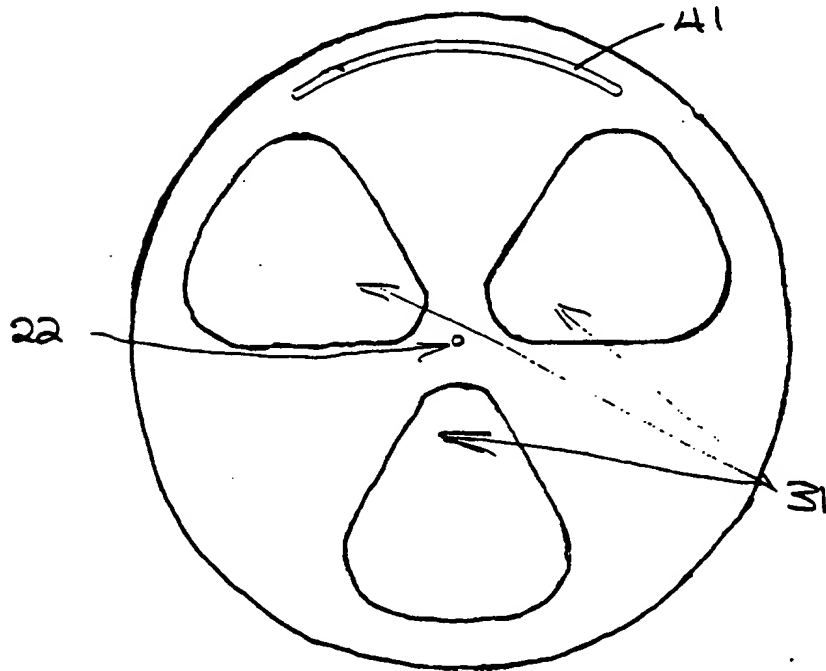


FIGURE 4

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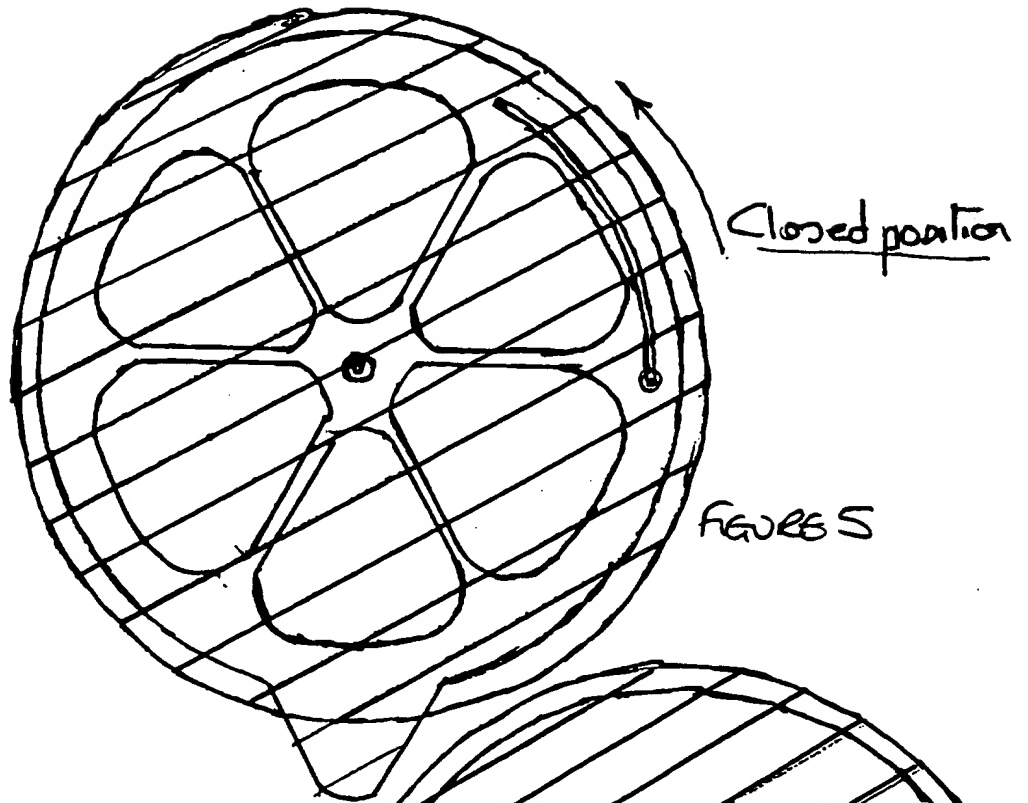


FIGURE 5

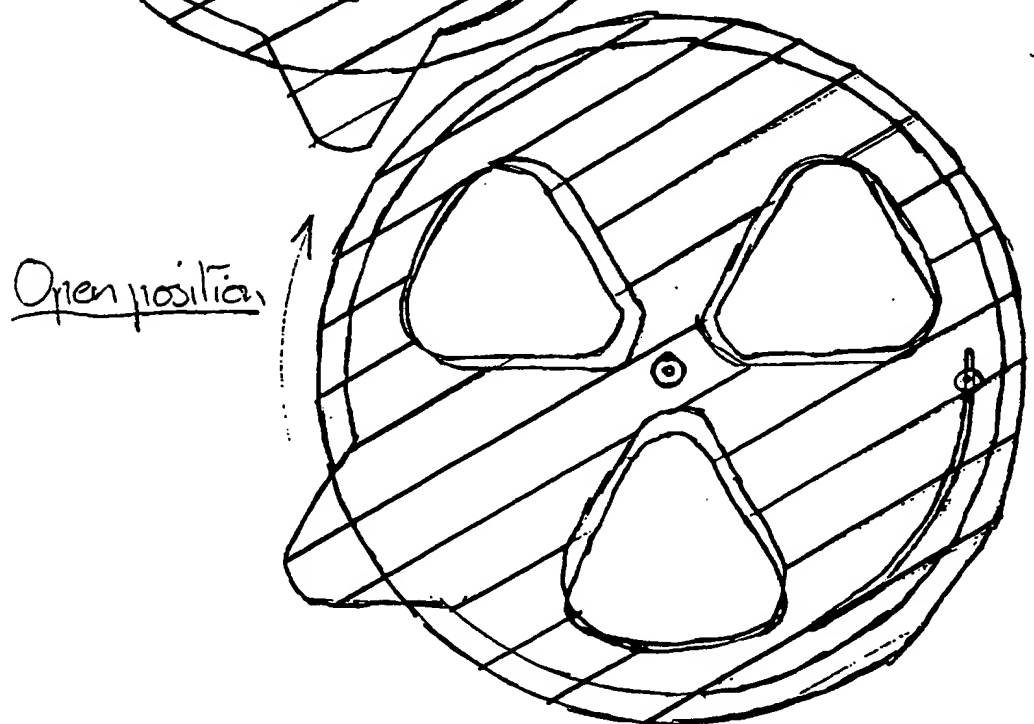


FIGURE 6

## LIGHT FILTERS

The present invention relates to light filters, in particular to filters for torches and other lighting apparatus. The present invention is particularly related to torches used in night-time hunting - a pursuit known as lamping, but will also find application in other fields, such as filters for lights in the photographic and film industries.

When hunting animals under cover of darkness, obviously the hunter needs to be able to see his quarry. Conventionally, he uses a high power torch. However, to avoid startling the animal a coloured filter is placed in front of the torch lens. Colours found to be useful include shades of red, blue, green and orange.

Filters present a problem however in that they greatly reduce the intensity of the light to the extent that clear definition of the quarry is impossible beyond around 80 yards (75 metres). As it is important to distinguish between suitable quarry and the neighbour's pet cat, hunters will usually remove the filter to provide a clear view of the quarry. Conventional filters clip resiliently, so as not to fall off in use, onto the lens of the torch. Whilst the quarry may be captivated by the filtered light from the torch, removal of the filter inevitably results in movement of the torch startling the creature and acting as a warning of human presence.

These difficulties also apply in the photographic and film industries, particularly, in the photographing of animals at night. Accordingly, there is a need for a light filter system which overcomes these disadvantages in the art.

In its broadest sense, the present invention provides a filter which can be mounted upon the lens of a torch, the filter comprising two elements, each element including a light-filtering portion and a portion which allows unobstructed transmission of light, wherein the first element is rotationally mounted upon the second element such that the degree of filtering can be adjusted between a minimum value and a maximum value.

Preferably, each element filters about 50% of the light incident thereupon, such that degree of filtering can be adjusted between 50% and 100%. 50% filtration has been

found to provide a good balance between filtered light to entrance the quarry and unfiltered light to provide the hunter with good clear sight of the quarry.

Suitably, the second element is mountable on the lens of the torch, for example, using adhesive tape.

The above and other aspects of the present invention will now be described in further detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic sectional view of a conventional torch of the type used in night-time hunting;

Figure 2 is a side view of the torch of Figure 1 to which has been fitted an embodiment of a filter in accordance with the present invention;

Figure 3 is a plan view of the rear element of the filter of Figure 2;

Figure 4 is a plan view of the front element of the filter of Figure 2;

Figure 5 is a plan view showing the filter of Figure 2 in the maximum filtering configuration; and

Figure 6 is a plan view showing the filter of Figure 2 in the minimum filtering configuration.

Figure 1 shows a torch typical of those used in night time hunting and consisting of a high intensity halogen bulb 10 at the centre of a generally parabolic reflector 11 mounted within a casing 12 having a handle 13 and sealed with a front lens 14. Around the periphery of the lens 14 is a rim 15. It is over this rim that conventional filters are fitted into place. The torch is powered by any suitable means, such as a 12v battery (not shown) and is activated by means of a switch 16 at the rear of the torch.

Referring to Figures 2 to 7, the embodiment of the filter shown includes a rear filter element 20 and a front filter element 21 mounted for rotation thereon, by means of a bolt 22 and nut (not shown) engaging central holes in the front and rear filter elements.

- 5 The front filter element includes a small handle 23 to assist in adjustment of the filter. The filter can be secured to the rim 15 of the torch by any suitable means. For example, the rear filter may include a rearwardly projecting rim which engages the rim 15 of the torch in a similar manner to the prior art filters. However, as shown, the filter can be secured simply by means of adhesive tape, such as electrical insulation tape
- 10 24. For this reason, front element 21 is typically of slightly smaller diameter than rear element 20.

The front and rear filter elements 20,21 can be made from any suitable coloured, transparent or translucent material, typically a plastics material. Typically, both

15 elements will be made of the same coloured material, but this is not essential.

- As is more clearly shown in Figure 3, the rear element 20 includes a number of apertures 30 which allow transmission of light from the torch bulb 10. There are corresponding apertures 31 in front element 21. The apertures 30,31 can be of any
- 20 shape and configuration. However, in the preferred embodiment shown, each element has three apertures which each have the appearance of segments of a grapefruit cut in half spaced alternately around each filter element. The result is that the front element 21 can be rotated with respect to the rear element such that the apertures in the front element 21 can be adjusted to correspond to those in the rear filter element 20 giving a
- 25 minimum level of filtering (as shown in Figure 6) or adjusted to lie between the apertures in the rear element 20 giving a maximum (100%) degree of filtering (Figure 5).

- As shown, in the preferred embodiment, the rear element 20 includes a rotation stop in the form of a pin 40 projecting forwardly therefrom. The rotation stop pin 40 engages
- 30 an arcuate slot 41 provided in the front filter element 21. The pin 40 and arcuate slot 41 are positioned in their respective elements such that when the pin is at one end of the slot, the filter is in the maximum filtering position and when the pin is at the other

end of the slot, the filter is in the minimum filtering position. In the embodiment shown, the front filter 21 is restricted to move only within a 60° range with respect to the rear filter element. This feature allows the hunter to easily adjust the degree of filtration without having to look at the front of the lamp to determine the respective  
5 overlap of the filter elements - which could result in additional movement of the lamp which may scare the quarry.

It will be immediately apparent that many variations of the features of the embodiment described above will be possible whilst achieving the same effect and are therefore  
10 encompassed within the present invention.

**CLAIMS**

1. A light filter comprising two elements, each element including a light-filtering portion and a portion which allows unobstructed transmission of light, wherein the  
5 the first element is mounted for rotation upon the second element such that the degree of filtering is adjustable between a maximum value and a minimum value.
2. A light filter as claimed in Claim 1 wherein each element filters about 50% of the light incident thereupon.
- 10 3. A torch having a light filter as claimed in Claim 1 or Claim 2.
4. A light filter substantially as herein described with reference to Figures 2 to 6.
- 15 5. A torch having a light filter substantially as herein described with reference to Figures 2 to 6.



Application No: GB 9812532.1  
Claims searched: 1-5

Examiner: Meredith Reynolds  
Date of search: 19 November 1999

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): G2J (JFM, J9B) F4R (RCK, RFM, RFN)

Int Cl (Ed.6): G02B 5/20, 5/30, F21V 9/10

Other:

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
A	EP 0565218A (Varilite)(whole doc)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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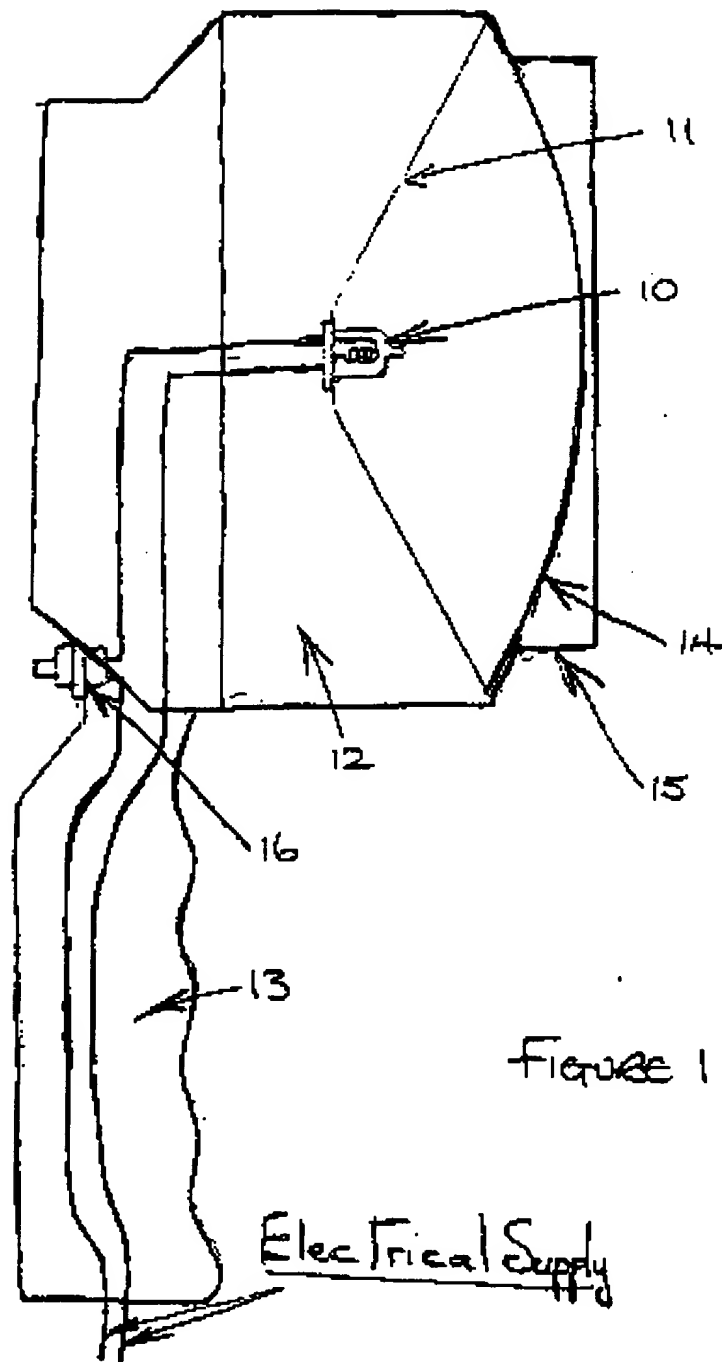


FIGURE 1.

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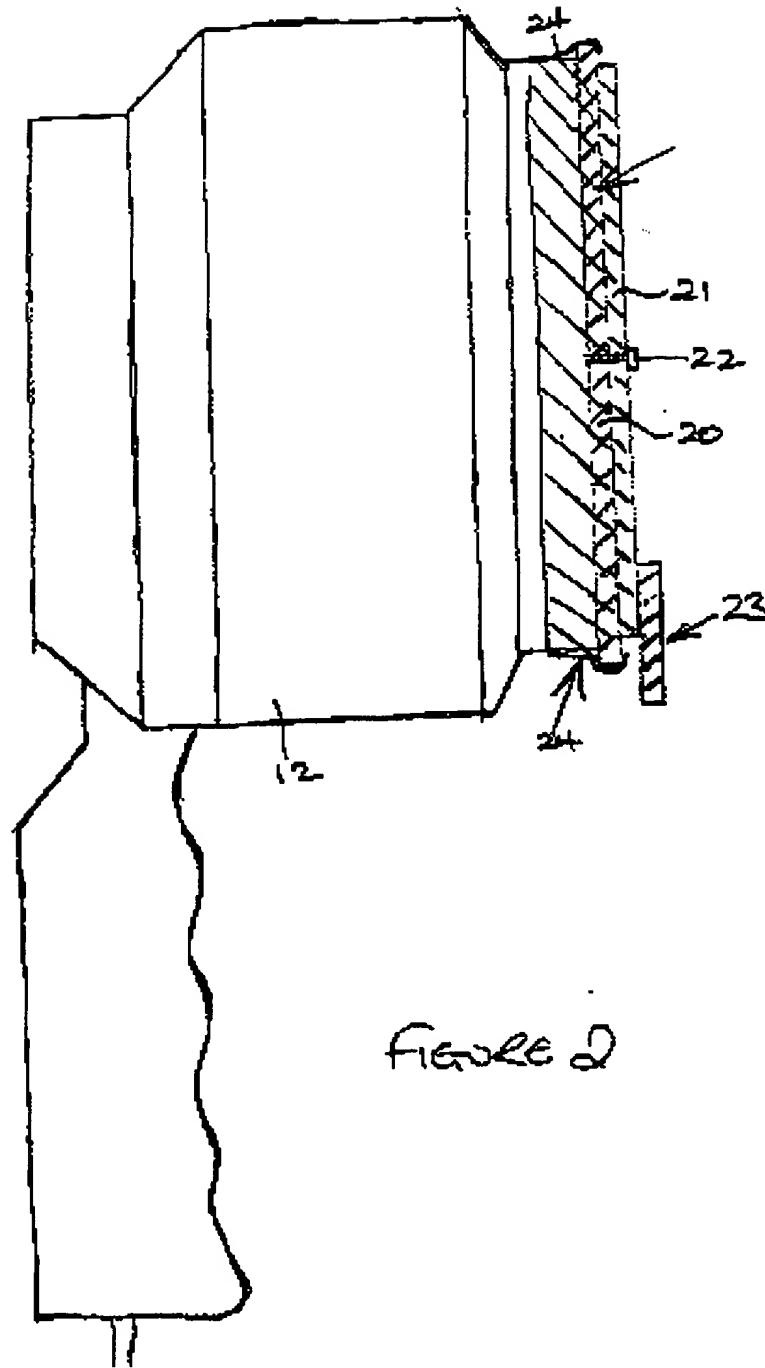


Figure 2

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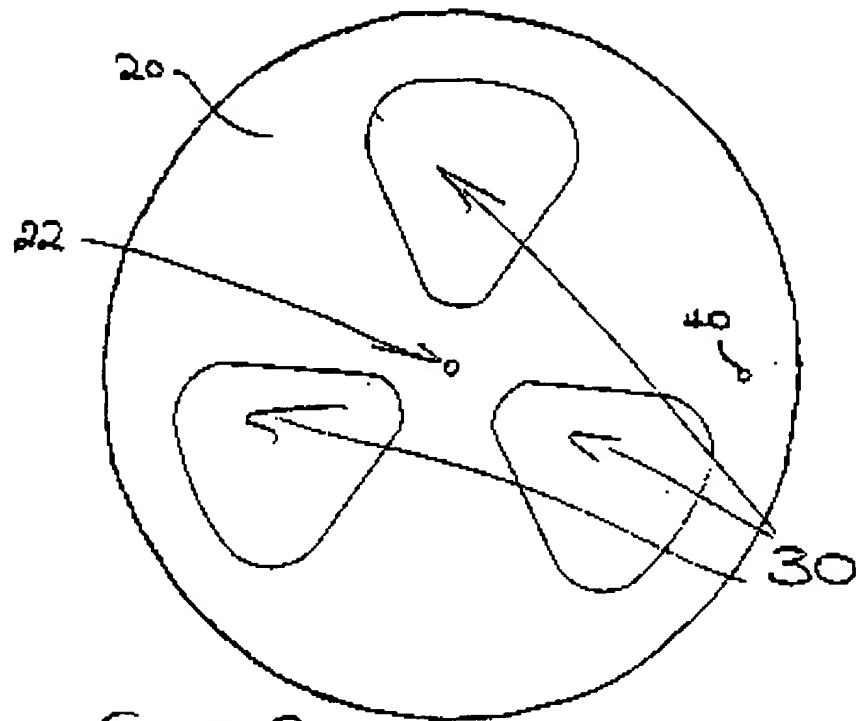


FIGURE 3

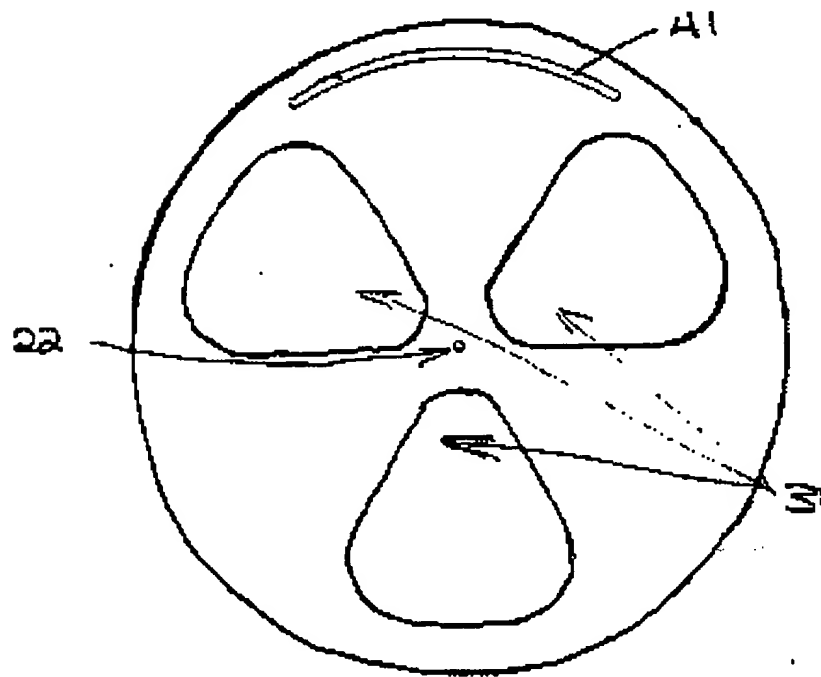


FIGURE 4.

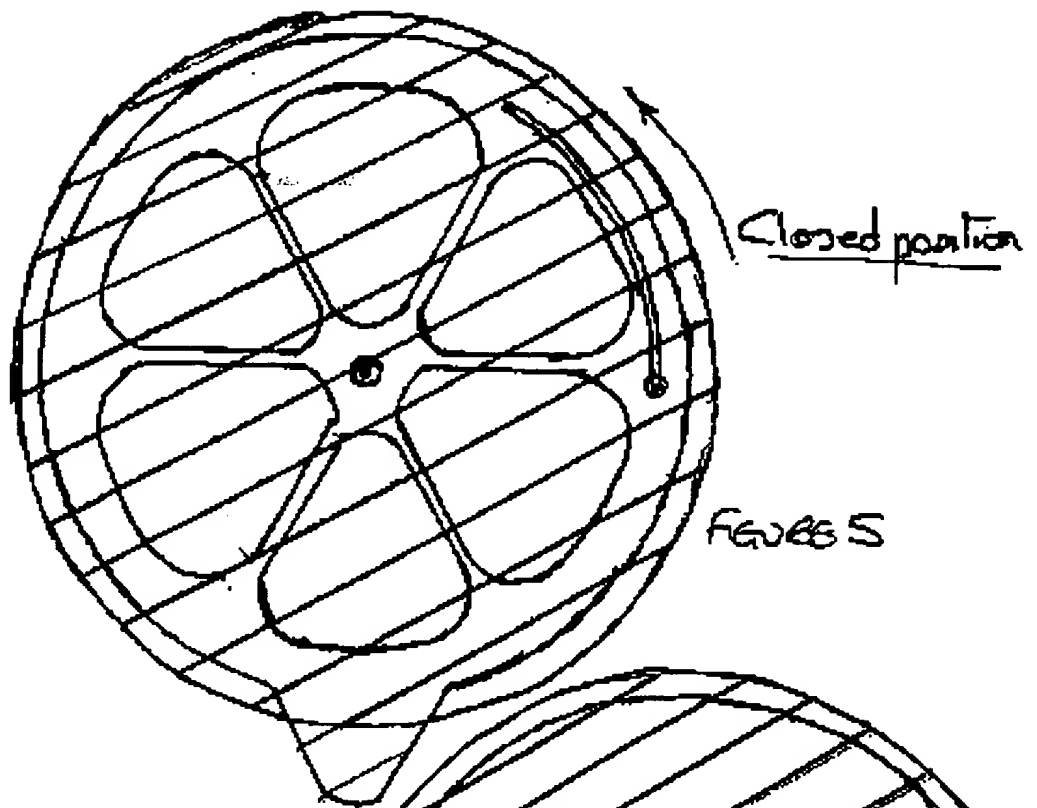


FIGURE 5

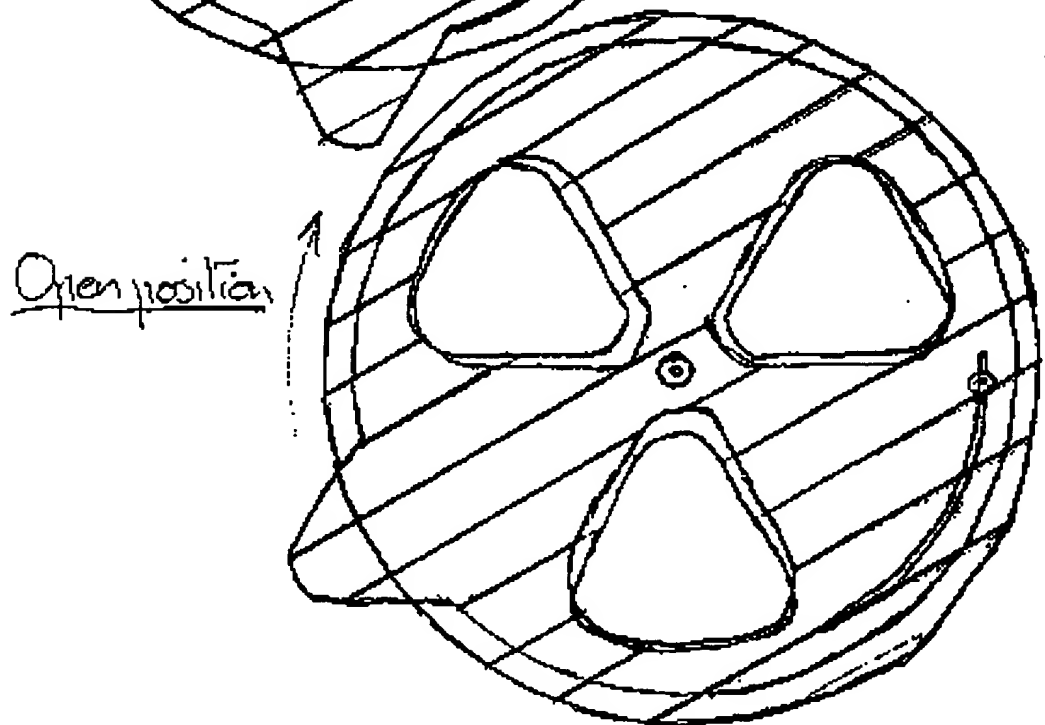


FIGURE 6

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